Wu, Jennifer

From: Wu, Jennifer
Sent: Tuesday, March 28, 2017 2:11 PM
To: 'Emi Kondo - NOAA Affiliate'; 'Cappellini, Malenna'
Subject: LNFH interim phosphorus limits
Attachments: WA0001902 FS.pdf

Hi Emi and Malenna,

For our call tomorrow, if we're going to talk about the relationship between phosphorus, DO, and pH, the TMDL (p.10-12) and the 2005 Fact Sheet (pages 14-15) that provide some general information about how that was studied and modeled in the TMDL.
(TMDL link: https://fortress.wa.gov/ecy/publications/documents/0810062.pdf)

As you both probably know, the TMDL assumes critical conditions (e.g., low flows in Icicle Creek) in modeling the worst case scenario to be conservative to derive wasteload allocations. So it's possible that phosphorus discharged at current levels, which are similar to the interim limits proposed in the compliance schedule, would result in attaining DO and pH under certain conditions as shown by the hatchery's monitoring. This would help show that the interim limits in the permit are reasonable during the compliance schedule period until the final permits come into play. I'd also note that these are all end-of-pipe limits, so in reality, some mixing will occur that dilute phosphorus in effluent – another possibility why the hatchery may not be seeing pH and DO violations even as they are discharging phosphorus.

Also, to give some context on how low the interim and final limits are for the LNFH compared to WWTPs, the LNFH interim limit which is close to their current operation is 15 microg/L as an average monthly limit and 17 microg/L as a max daily limit. The final limit is a load that is equivalent to 5.7 microg/L TP. In contrast, the measured effluent in the Peshastin, Cashmere, and Leavenworth WWTPs in the Wenatchee River watershed in 2002 and 2003 ranged from ~3000 microg/L to 7000 microg/L TP, approximately 2-3 orders of magnitude higher. The final limits are 90 microg/L for these WWTPs. Recent Discharge Monitoring Reports (DMRs) data show that TP levels from the WWTPs are still in the mg/L (thousands of microg/L) range for TP. Though the operations are very different, this is to give context on the relatively low amount of TP coming from the hatchery and how low the interim and final limits are in comparison.

Looking forward to talking tomorrow,
Jenny Wu
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